

IN THE CLAIMS

Claims 1-11 (Canceled).

12. (Currently amended): An isolated protein having glycosyl hydrolase activity, said protein being selected from the group consisting of

~~(a) a protein comprising an amino acid sequence depicted in SEQ ID NO: 6;~~

~~(a) a protein comprising an amino acid sequence depicted in SEQ ID NO: 8;~~

~~(b) a protein encoded by the nucleotide sequence of SEQ ID NO: 5;~~

~~(b) a protein encoded by the nucleotide sequence of SEQ ID NO: 7; and~~

~~(c) a protein having a an hydrophobic cluster analysis (HCA) score with the kappa-carrageenase of *Alteromonas carrageenovora* which is greater than or equal to 75% over the domain extending between amino acids 117 and 262 of the amino acid sequence of *Alteromonas carrageenovora* that is SEQ ID NO: 6.~~

13. (Previously added): A protein according to claim 12, wherein the HCA score is greater than or equal to 80%.

14. (Previously added): A protein according to claim 12, wherein the HCA score is greater than or equal to 85%.

15. (Previously added): A protein according to Claim 12, comprising an amino acid sequence depicted in SEQ ID NO: 6, wherein the protein is extracted from *Alteromonas carrageenovora*.

Claim 16 (Canceled).

17. (Previously added) A method of producing ~~kappa-oligocarrageenans~~ kappa-carrageenans, comprising

(a) genetically modifying a host cell with a nucleic acid molecule having SEQ ID NO: 5 ~~or SEQ ID NO: 7~~, or with a vector comprising a nucleic acid molecule having SEQ ID NO: 5 ~~or SEQ ID NO: 7~~;

(b) culturing the host cell until a protein having glycosyl hydrolase activity is produced;

(c) isolating the protein having glycosyl hydrolase activity;

(d) contacting the isolated protein having glycosyl hydrolase activity with a carrageenan until ~~kappa-oligocarrageenans~~ kappa-carrageenans are produced; and

(e) recovering the ~~kappa-oligocarrageenans~~ kappa-carrageenans.